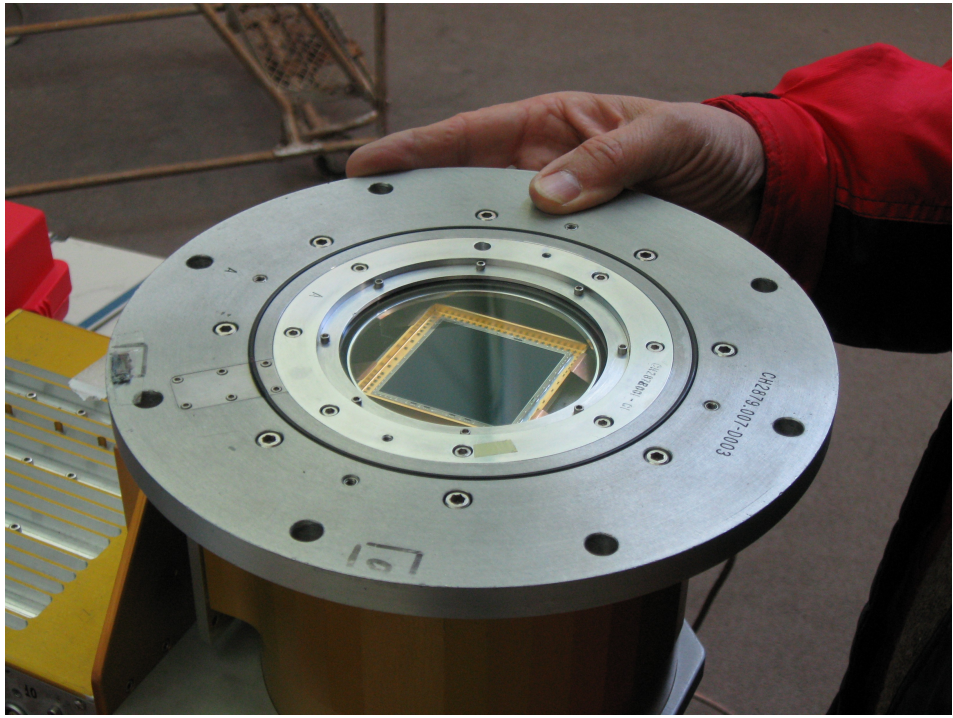
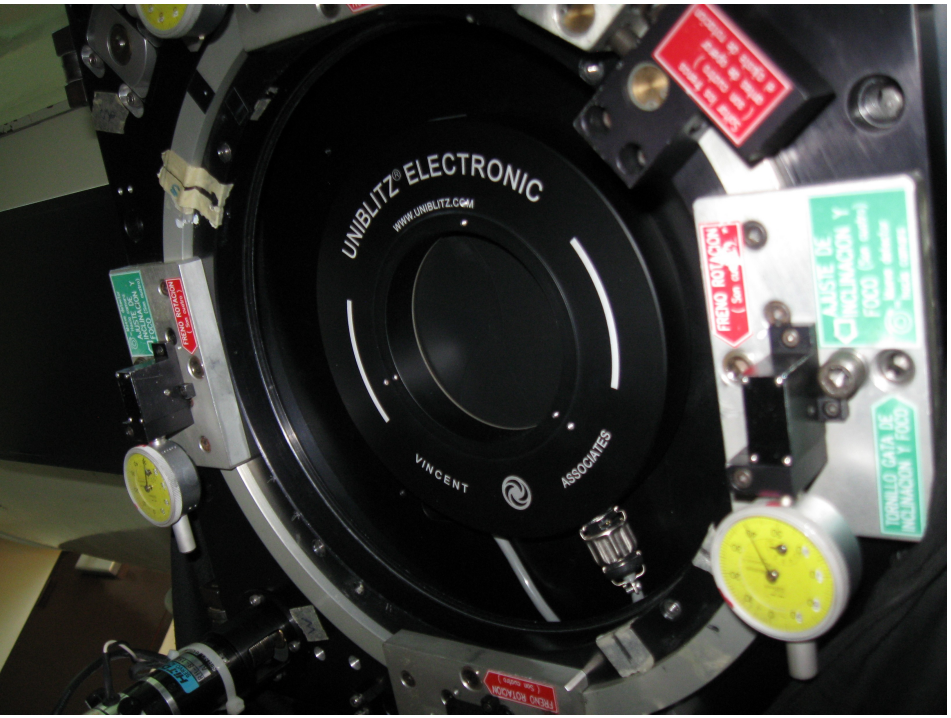
The Camera

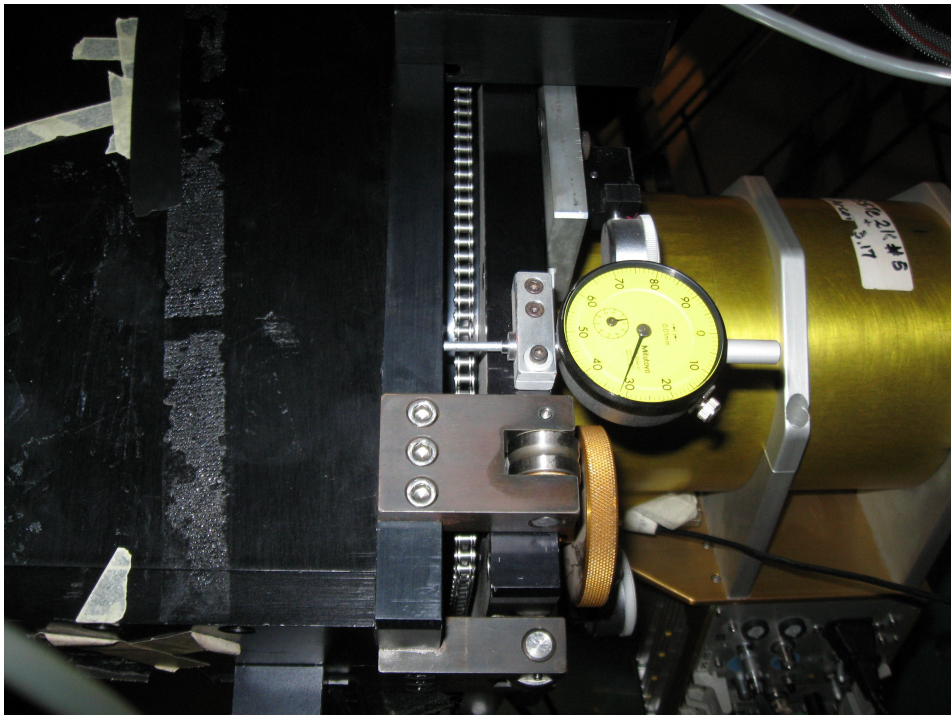


Current CTIO Dewar: Pictures from Pat

More Pictures from Pat

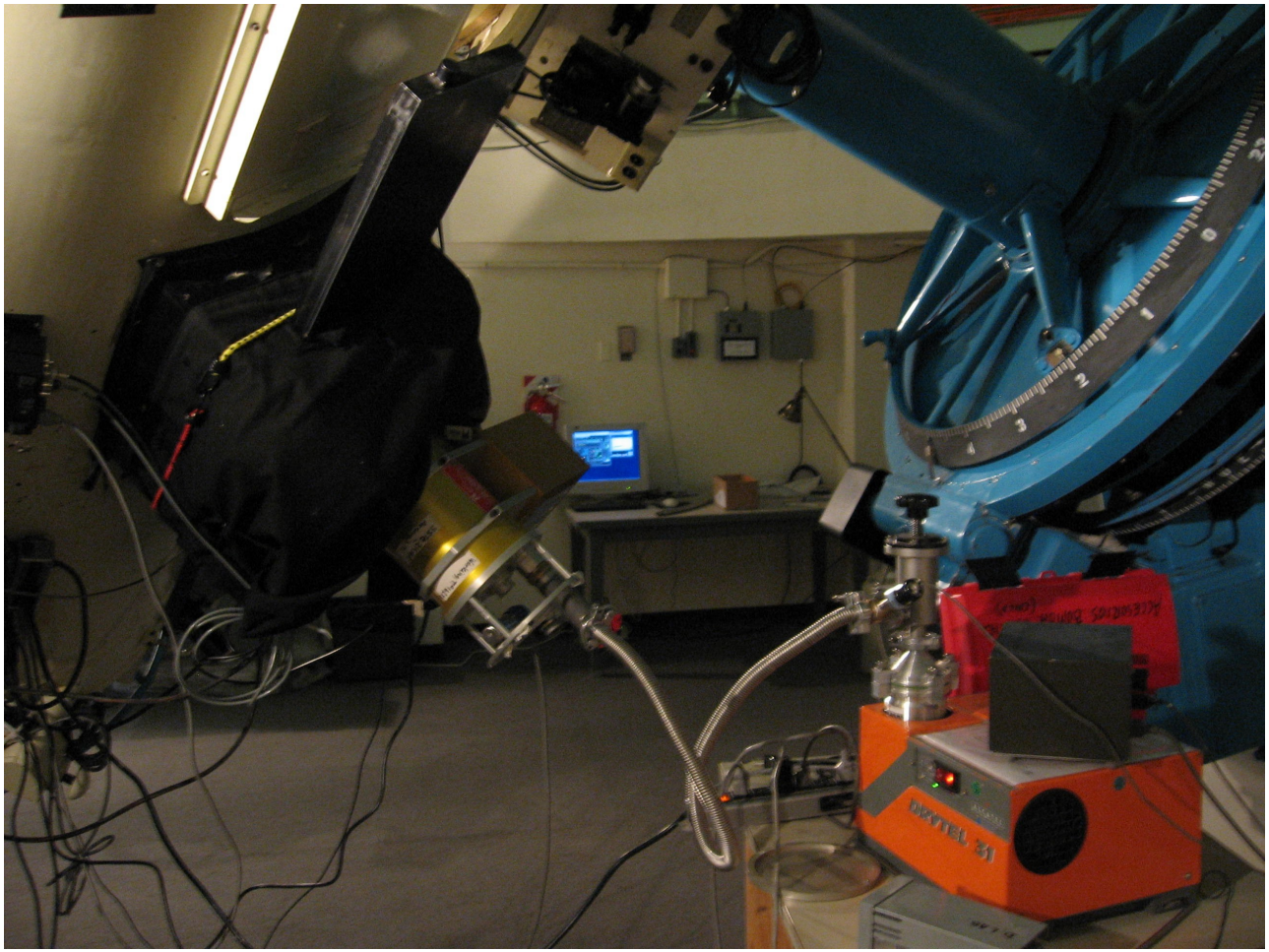


90 mm shutter



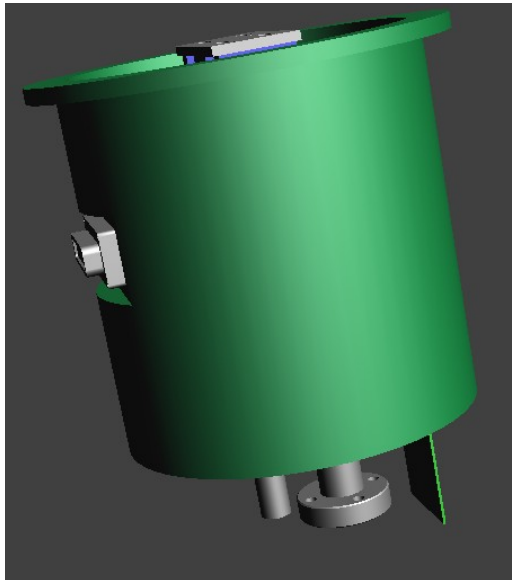
Side view of tilt/focus

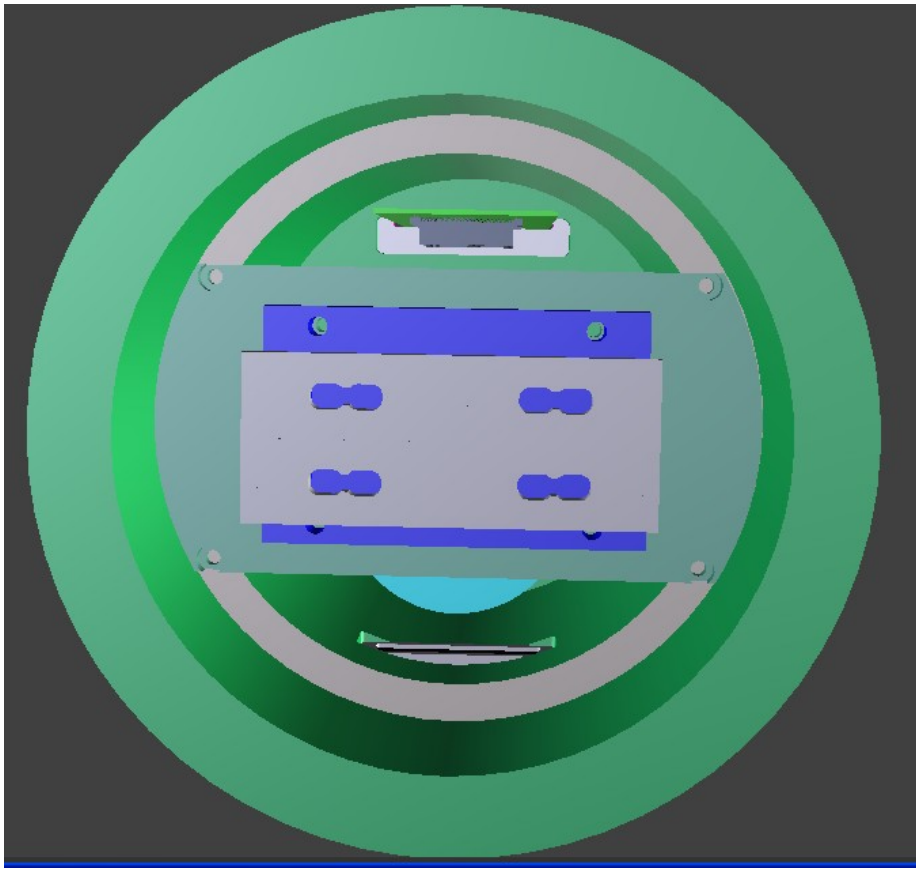
Current Setup

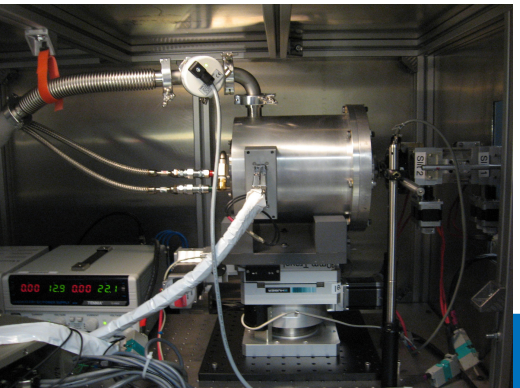


Initial dewar model (Vic Guarino/ANL)

10” diameter, 9” long

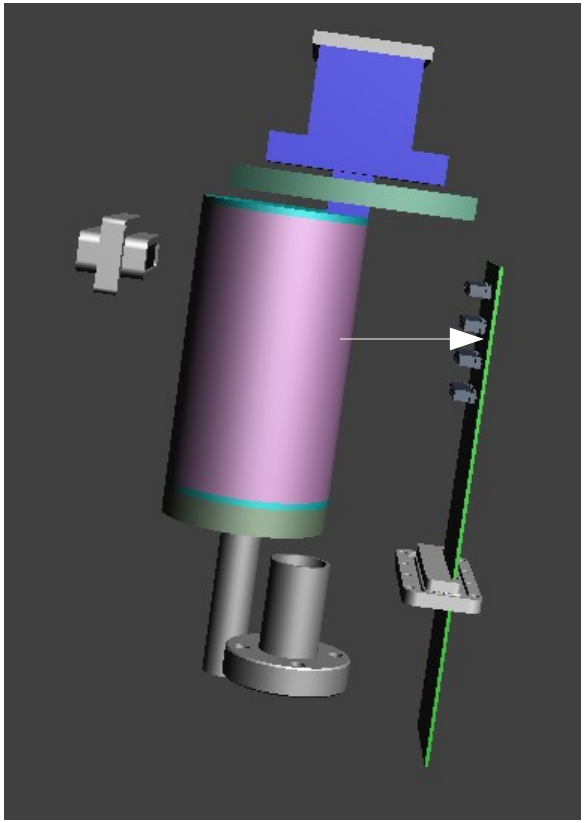


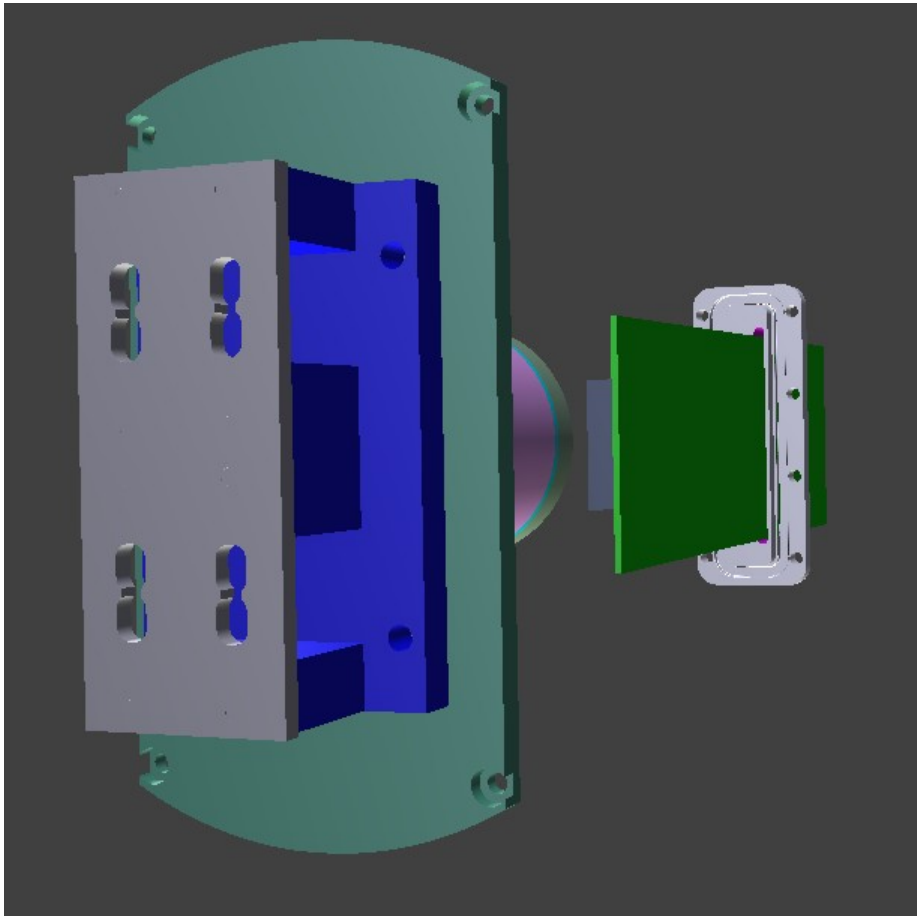




Very similar to ANL vessel used for x-ray studies at APS, LN2 and VIB main difference.

Initial dewar model





Need a new VIB, none of the current 4-6 CCD VIBs are for DECam electronics. T. Shaw says that VIB doesn't care if 2Kx2K or 2Kx4K, and 6 CCD version similar to 4 CCD. Therefore proceeding with 6 CCD VIB.

CCDs

Yield of 2Kx4K CCDs is currently good

~43 science grade, need ~70 including spares

~20 more close-to-science grade, many could be useful for Precam (such as ones with 10-20 bad columns or slightly high dark current such as 40 electrons/hour)

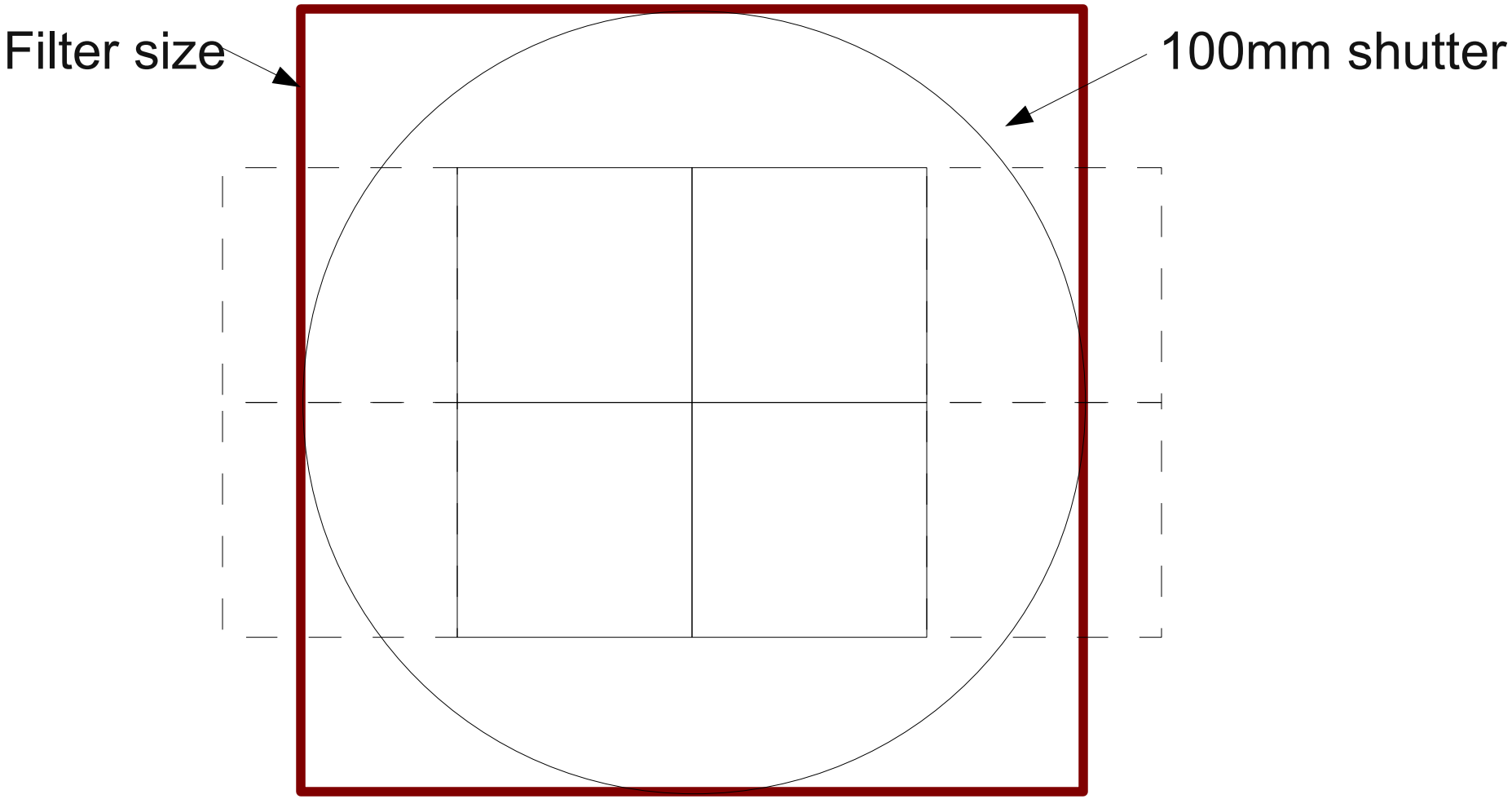
The first 2Kx2K devices look good as well.

Assume both are available, tune survey based on 10s readout of 2Kx2K and 20s for 2Kx4K.

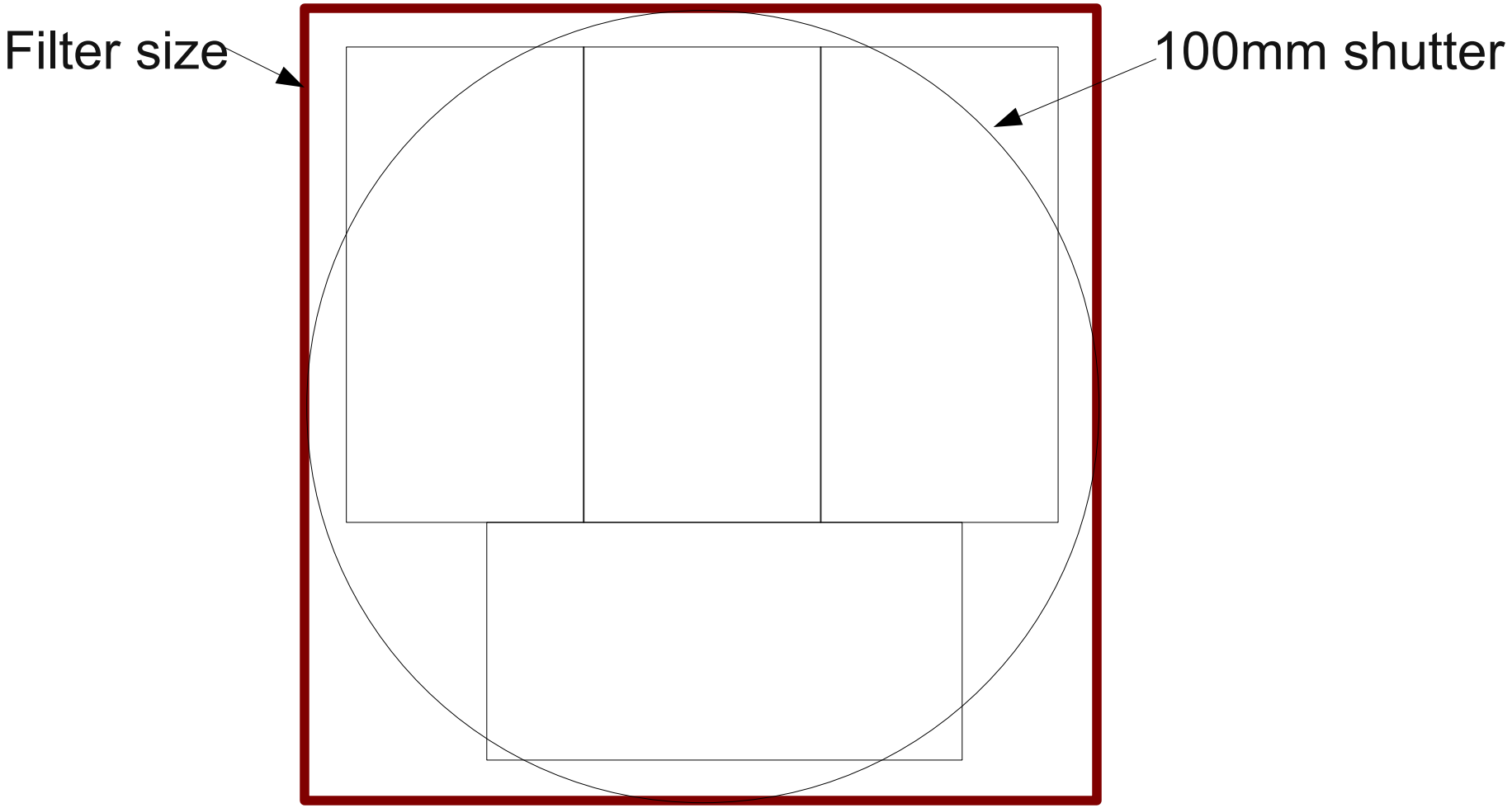
Assuming no vignetting...

Configuration	Readout Time	Area	Survey Time
Four 2Kx2K	10s	2.56 sq. deg.	88 nights
Six 2Kx2K	10s	3.84 sq. deg.	59 nights
Four 2Kx4K	20s	5.12 sq. deg.	49 nights

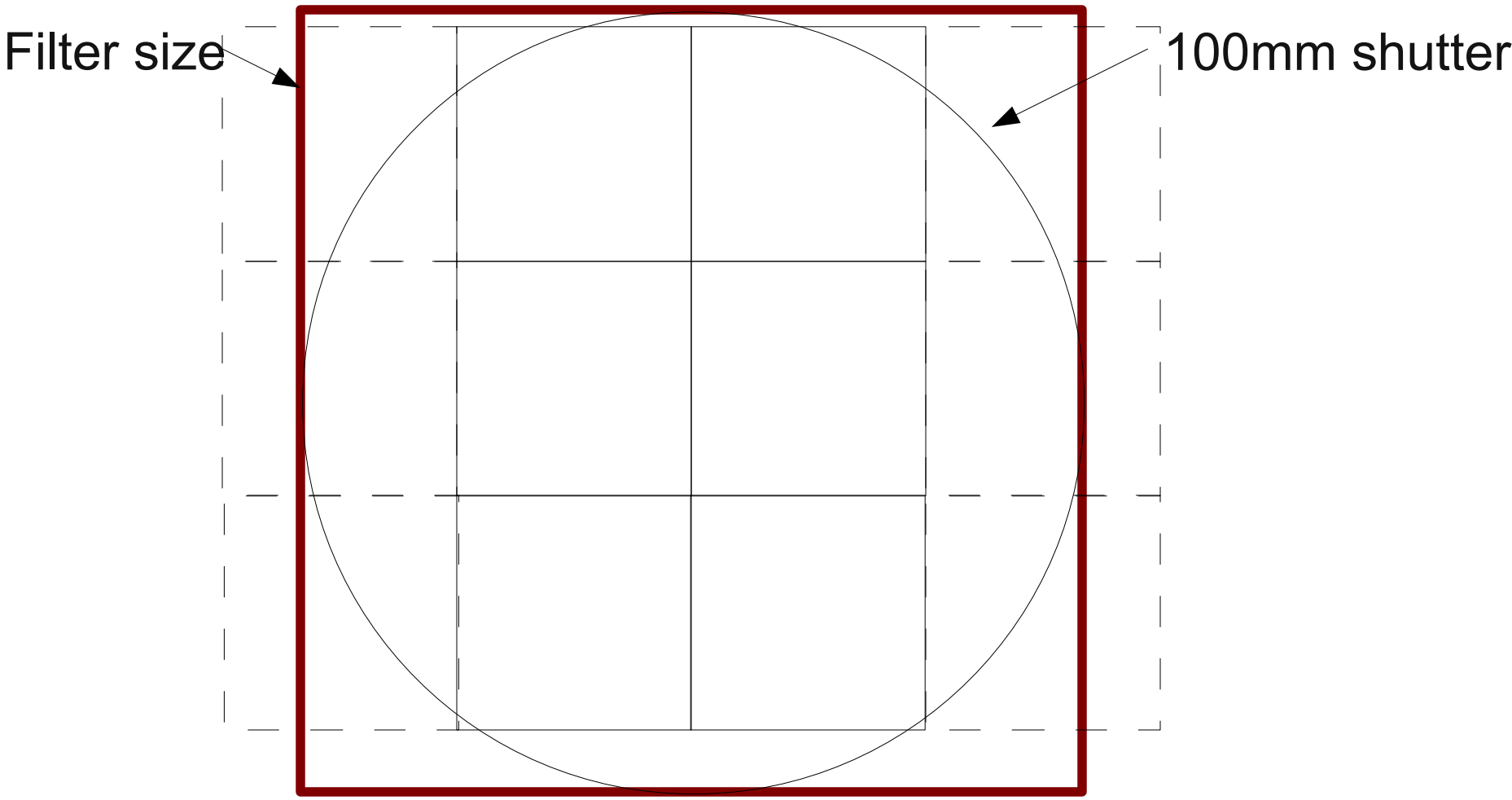
4 2Kx2K in 2Kx4K pedestal



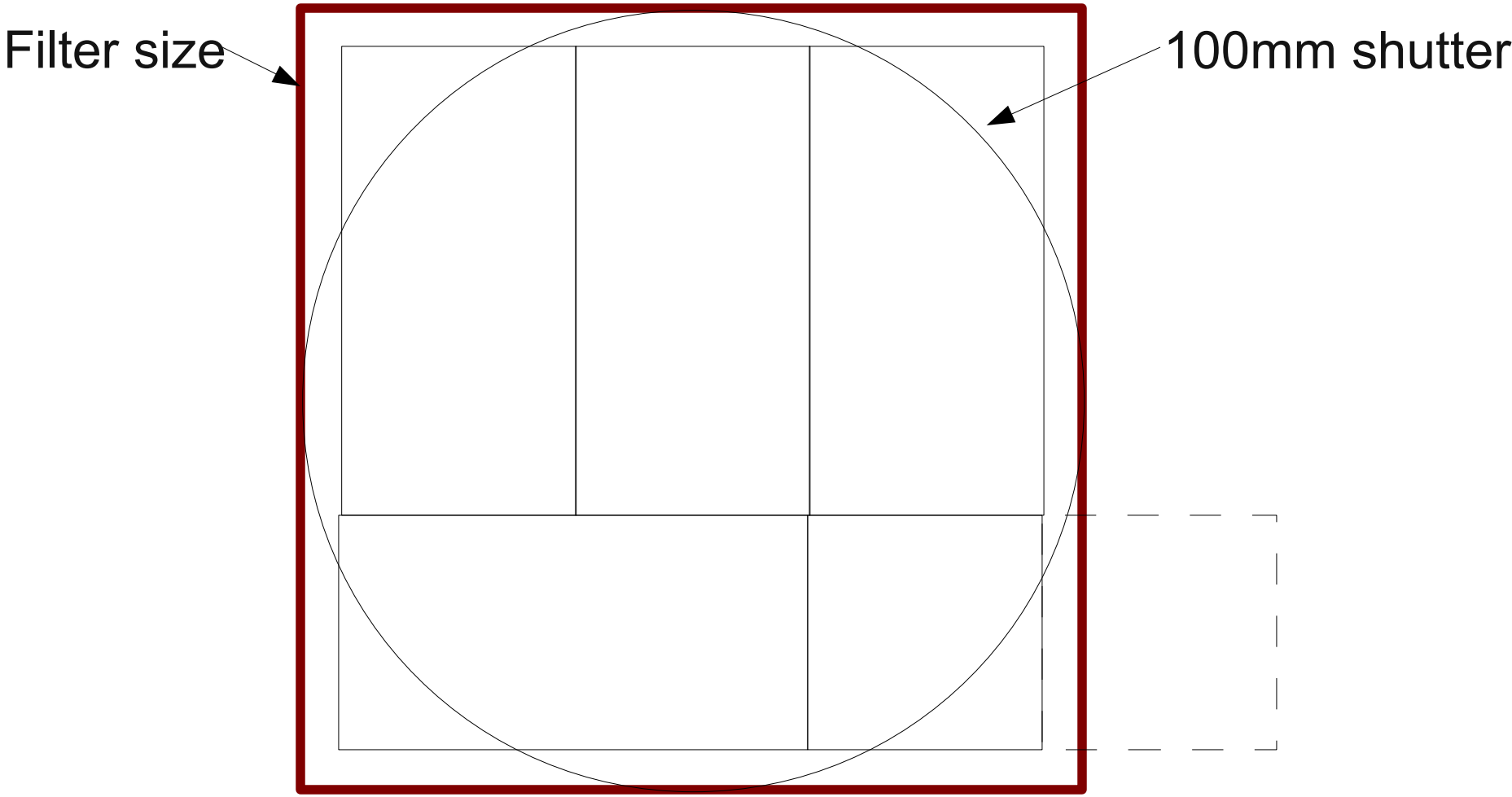
4 2Kx4K



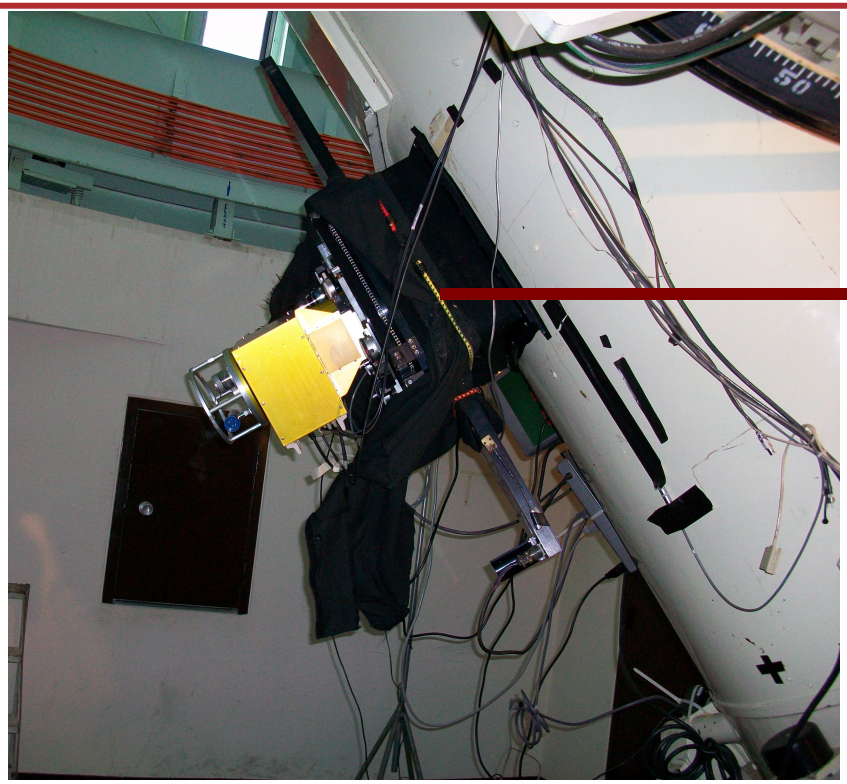
6 2Kx2K in 2Kx4K pedestal

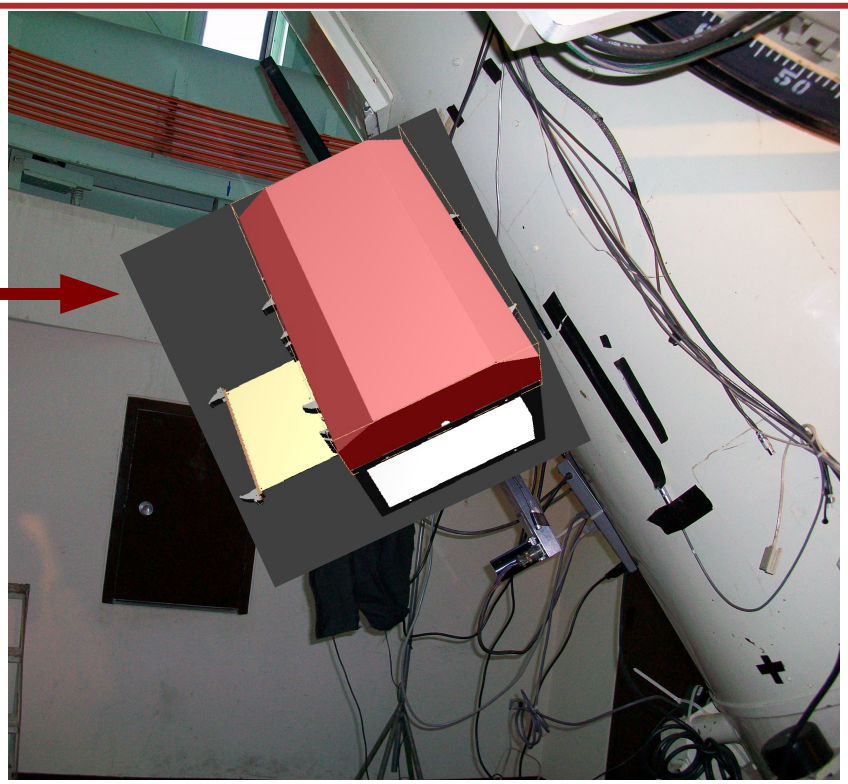


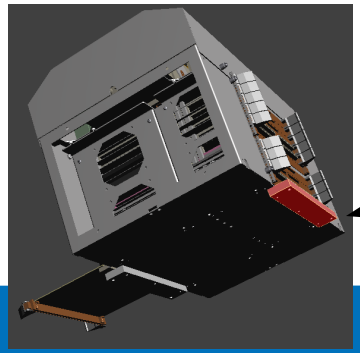
4 2Kx4K and 1 2Kx2K



Production Monsoon Crate Mounting (1 possibility)

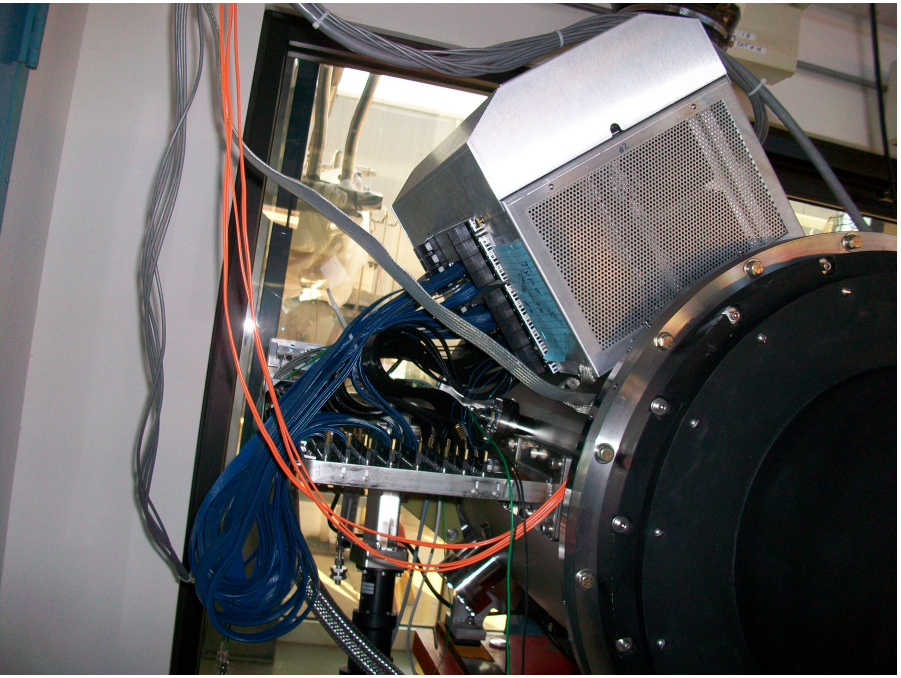


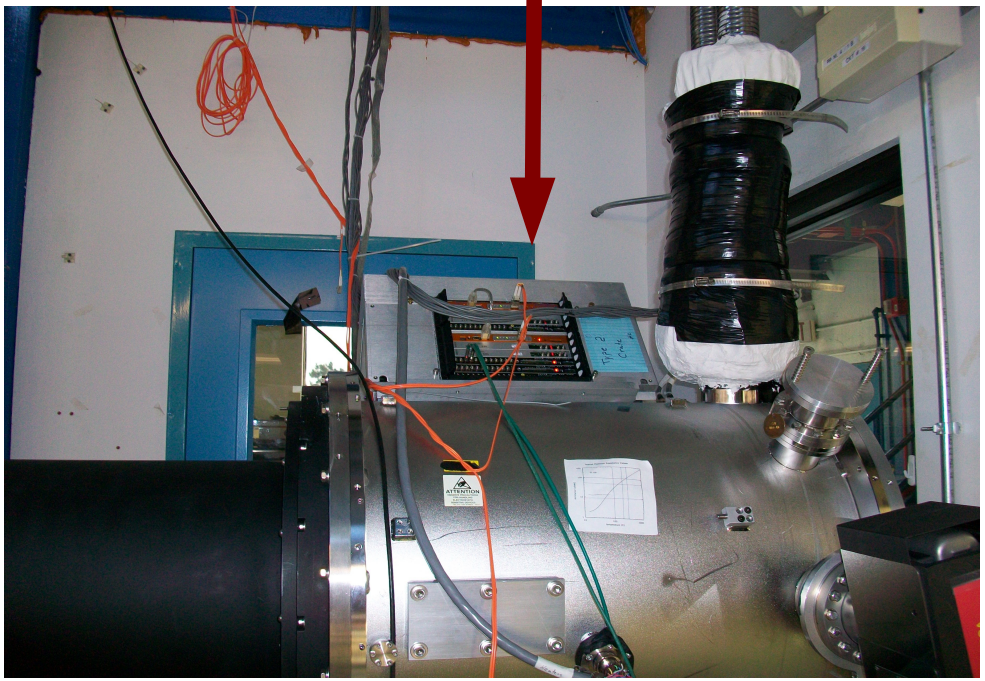




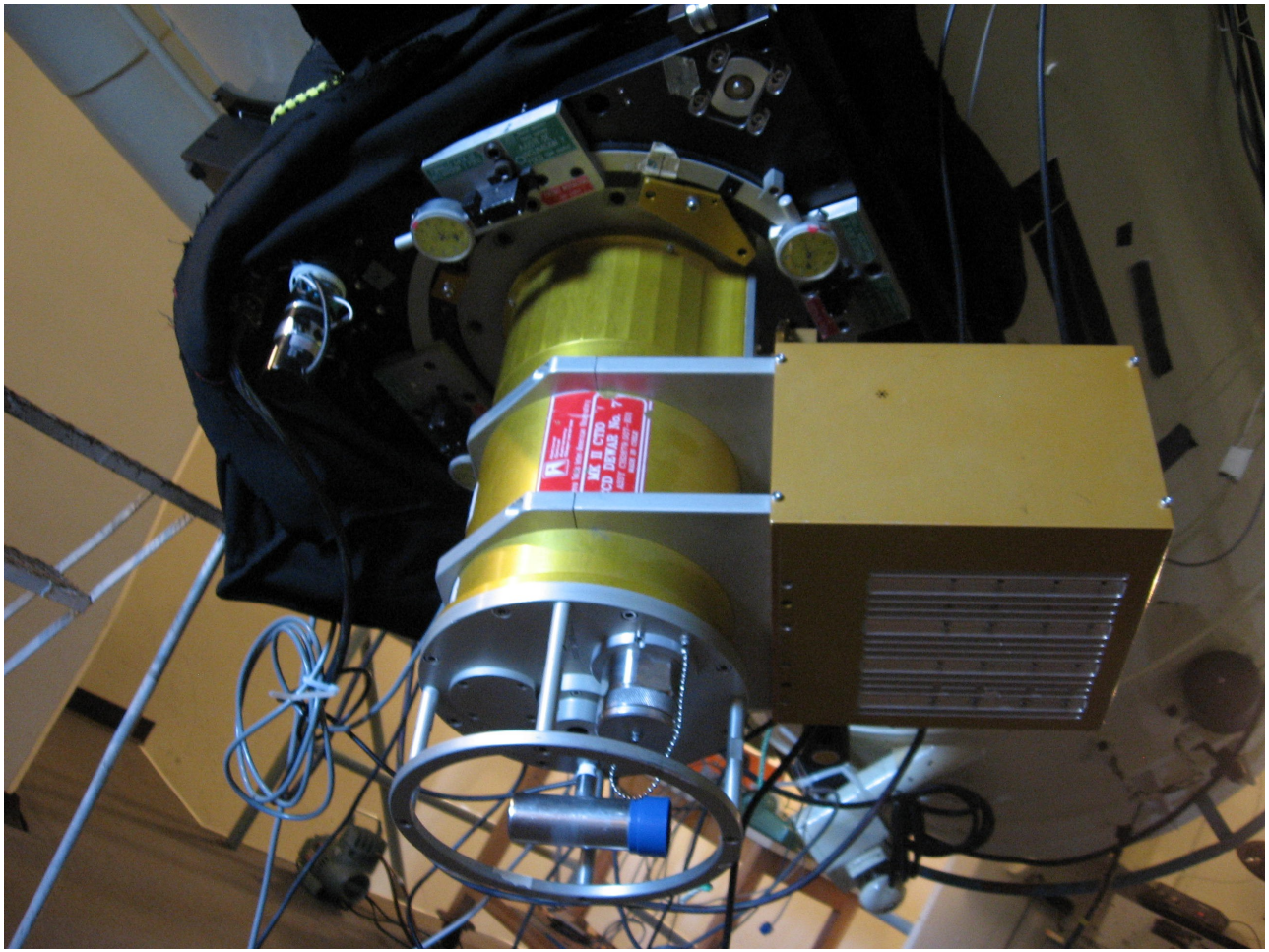
Mounting brackets on Monsoon

One optical fiber for readout (and 1 cable for exposure sync?)





Tilt/focus box



Camera and Electronics Parts List	Cost	Institution
Pfeiffer TSH071E Economy Pumping Station and Gauge	$6,673	DES
Lakeshore Model 331S-T2 Cryogenic Temperature Controller	$3,174	DES
DAQ computer	$2000	DES
Monsoon Crate	in-kind	FNAL
DECam Master Control Board	in-kind	FNAL
DECam 12channel board	in-kind	FNAL
DECam Clock board	in-kind	FNAL
Vacuum Interface Board	$10K+layout	FNAL
CCDs	in-kind	FNAL
Cables from focal plane to VIB and cables from Monsoon to VIB.	in-kind	FNAL
Camera vessel and focal plane raw materials and engineering/machining	$30,000	ANL
Opto-Sigma Fused Silica 10cm Window, 15mm thickness, 045-0435	$735	ANL
Positronic Industries Hermetic Connector (XAVAC50M) for temperature control	$350	ANL
PT103 Omega RTDs same as DECam (5 including spares)	$225	ANL
HTR-25 Lakeshore cartridge heaters, same as DECam (4 including spares)	$216	ANL

Need in February 2010

Need in November 2009

Need 1 month before VIB

Assume on 14th floor

Assume on 14th floor

Assume on 14th floor

Assume on 14th floor

FNAL modified design

Assume DECam spares

Assume DECam spares

Underway

In hand

In hand

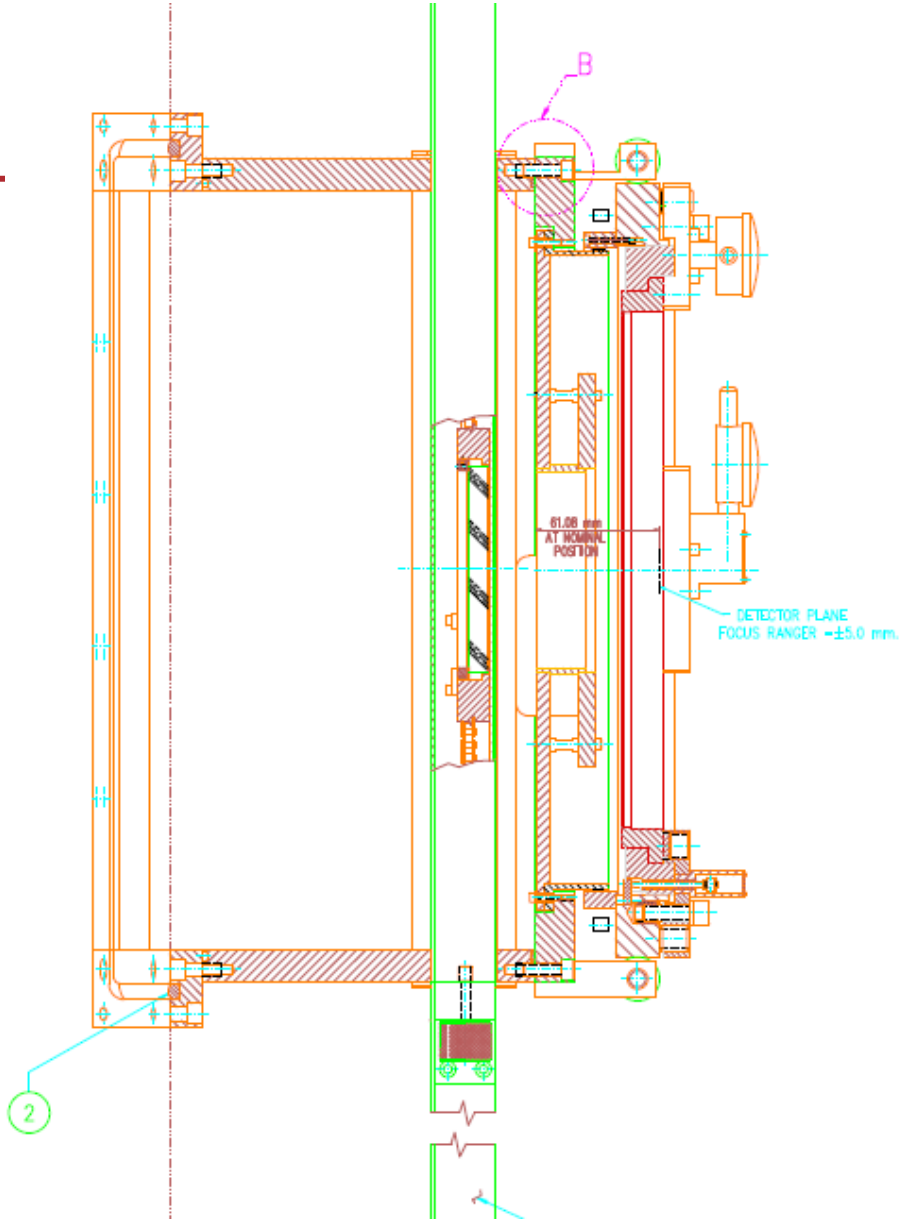
Ordered

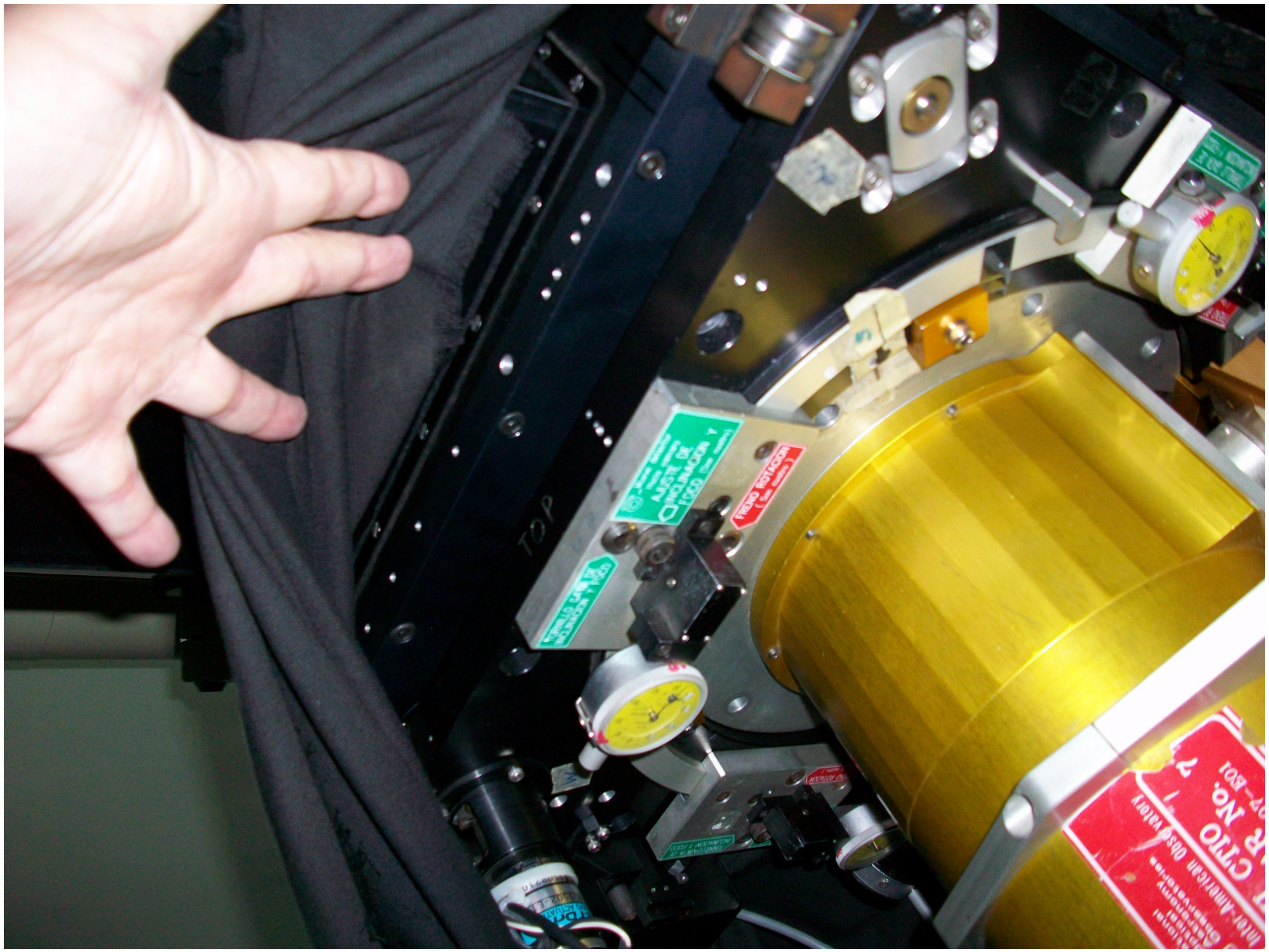
Ordered

Schedule

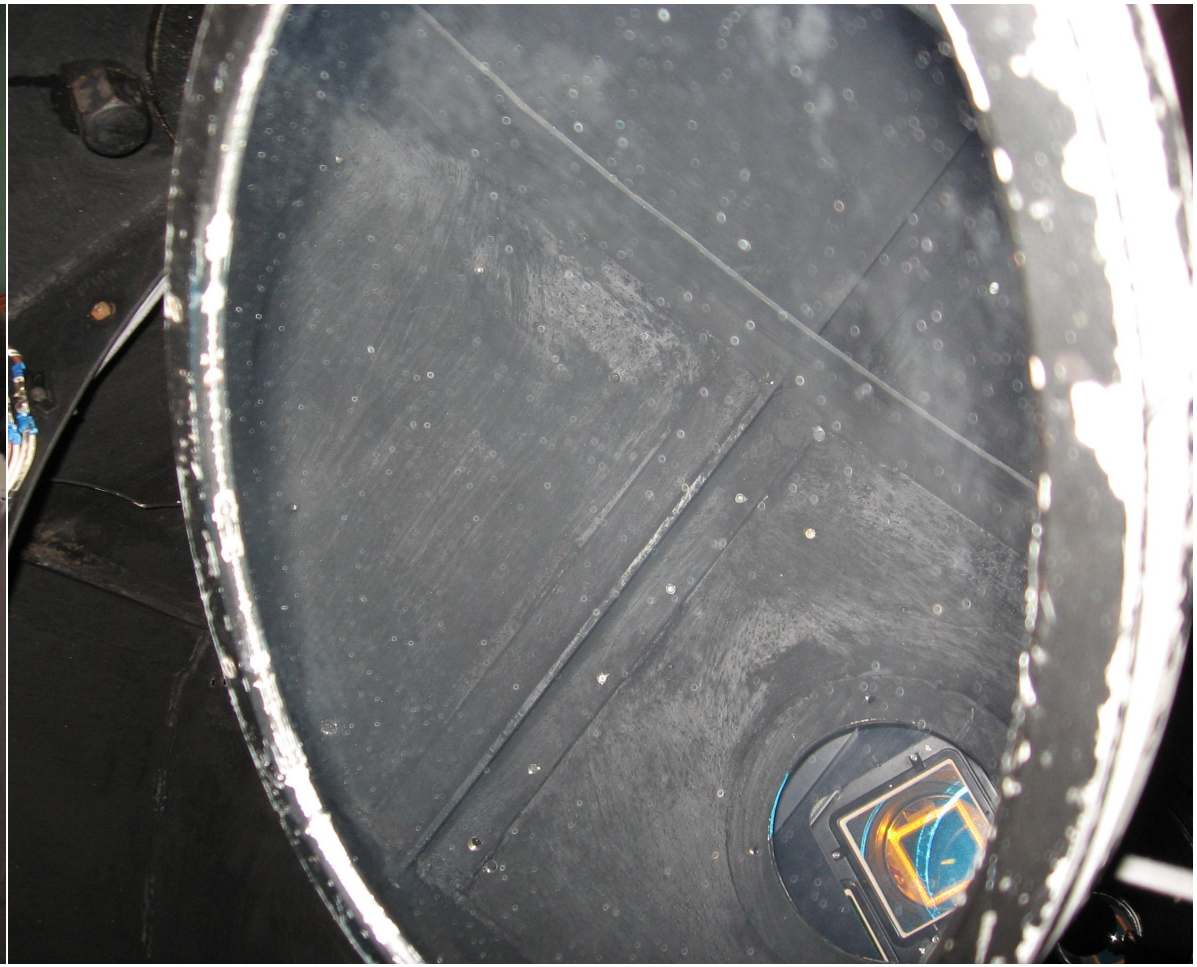
- Refine vessel design now until VIB layout submitted
- November do a “toy” thermal test with LN2, Lakeshore controller, DECam heaters and DECam RTDs
- Assume VIB design submitted for fabrication early Dec
- Machine vessel and focal plane in December
- Setup DAQ computer and Monsoon in January
- Test vessel vacuum and thermal properties in January
- Assume complete VIB available end of January
- Assemble and begin tests in February
- Ship to CTIO June/July 2010

Backup slides...


B
61.08 mm
AT NOMINAL
POSITION
DETECTOR PLANE
FOCUS RANGER =±5.0 mm.
2


TOP

View from inside



LN2 fill